Why Does Hydrogen Peroxide Fizz On Cuts?  
Remy Melina, Life's Little Mysteries Staff Writer   |   February 23, 2011 11:36am ET  
  
When you put hydrogen peroxide on a cut, that white, fizzling foam is actually a sign that that the solution is killing bacteria as well as healthy cells.

**Key** **Vocabulary**:

**enzyme**: a protein that lowers the energy needed for a reaction

**catalyst**: enzyme that increases the rate of a reaction

**catalase**: enzyme that increase the rate that H2O2 breaks down (reduces)

**metabolize/metabolism:** all the chemical reactions in an organic organism

**chemical** **reaction**: process leading to a chemical change/ the breaking of chemical bonds

Hydrogen peroxide (H2O2), a compound made up of two hydrogen atoms and two oxygen atoms, begins to break apart as soon as it contacts blood, creating that stinging sizzle. This is because blood and most living cells contain the enzyme catalase, which attacks hydrogen peroxide and converts it into water (H2O) and oxygen (O2).

An enzyme is a protein that speeds up or slows down a specific chemical reaction in an organism. A good rule of thumb is to remember that enzyme names end in “-ase”. This will help in identifying enzymes in further readings. Generally enzymes are catalysts, meaning it speeds up a reaction.

Hydrogen peroxide has been used as an antiseptic since the 1920s because it kills bacteria cells by destroying their cell walls. Unfortunately, hydrogen peroxide's oxidation also destroys healthy skin cells. This is why many physicians and dermatologists currently advise against using hydrogen peroxide to clean wounds as it has been found to slow the healing process and possibly worsen scarring by killing the healthy cells surrounding a cut.

Despite its negative effect on healthy cells, our bodies' cells naturally produce hydrogen peroxide when we metabolize food and turn it into energy. So how can a cell produce something that can destroy its own walls? That's where catalase steps in: when a cell creates hydrogen peroxide, it stores it inside the cell's specialized organelles, called peroxisomes, which contain hydrogen peroxide-busting catalase. Inside of a peroxisome, hydrogen peroxide decomposes and is turned into harmless water and oxygen gas.

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**Reading Questions** Answer questions in complete sentences

1. What is an enzyme?
2. What is a catalyst?
3. What is a chemical reaction?
4. What is a metabolism?
5. What is hydrogen peroxide and what is it used for?
6. Where is catalase found and when is catalase released?
7. What are the bubbles evidence of? What are the bubbles made of?
8. Make a prediction about what you think can happen to the enzymes when you heat/cook potatoes, plants, or animals?

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